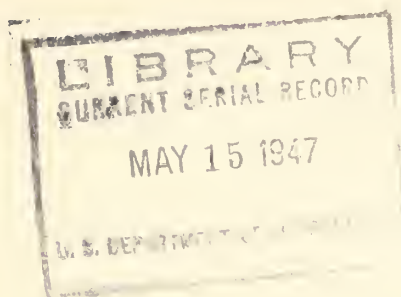


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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
WASHINGTON 25, D. C.



FIELD MEMORANDUM SCS-1120

Re: Guide for the Conduct
of Soil Conservation
Service Drainage
Activities

May 1, 1947

TO ALL RANKING FIELD OFFICERS:

Drainage is an important land problem in approximately half of the soil conservation districts in the United States. Well-planned and well-executed improvement work that is needed in many existing drainage projects, as well as new drainage undertakings, will aid (1) in bringing about better use and protection of land and water resources, (2) in increasing and maintaining soil productivity, and (3) in assuring a more permanent agriculture and better farm living. In addition, the effective drainage of fertile, level lands will frequently make possible the better use and protection of eroding uplands. For example, after drainage, the level lands which were formerly too wet may be used for producing cultivated crops and, in turn, the sloping, eroding lands which had been unwisely cultivated, may be used to produce timber, legumes, or grass.

For these and other reasons, district governing bodies are requesting the assistance of the Soil Conservation Service to help them solve their drainage problems.

The Secretary of Agriculture has approved my proposal of April 2, 1946, (see appendix) to give greater emphasis to Soil Conservation Service activities in the field of drainage, as part of the soil conservation program. Accordingly, we shall hereafter give a greater degree of attention to the solution of basic conservation drainage problems confronting conservation districts.

The primary conservation drainage responsibility of the Service is to assist soil conservation districts, drainage districts, and farmers in improving drainage conditions on approximately 30 million acres of poorly drained farmlands which are currently in cultivation or have been cultivated at one time or another. Further, the Service will continue to assist conservation district governing bodies in including provisions, in their programs and work plans, for technically sound drainage of parts of approximately 20 million acres (largely in farms) which have never been drained but which are suitable for drainage. In short, the most important contributions the Soil Conservation

Service can make at this time in the drainage field are to help soil conservation districts and others develop sound and comprehensive drainage plans and then to assist them in carrying out the plans.

It may take two or more years to complete the necessary examinations and surveys that would permit district governing bodies to adopt or amend their programs and work plans to include adequate consideration of drainage. Where drainage is the major conservation problem and the Service finds it is necessary to assign qualified personnel to the job to make needed examinations and surveys, the establishment of a work unit in the area may be deferred until the significant preliminary information has been secured. This will enable the district governing body to adopt sound drainage plans in advance of actual operations. After such plans have been considered by the interested land owners and operators and adopted by the governing body, work units may then be assigned to assist those farmers and ranchers ready to carry on drainage work. Where both drainage and other conservation problems are involved, the Service will not unnecessarily delay establishing a Work Unit to help land owners and operators with other conservation work until the district has completed over-all plans for the drainage phase of its operations.

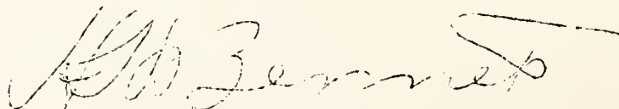
In this connection, it is appropriate to re-emphasize that drainage of farmlands is a part of the job of soil conservation and, insofar as Federal Government activities are concerned, comes directly within the legitimate field of work of the Soil Conservation Service, the agency set up by Congress to do the soil conservation job.

In our activities in the field of drainage planning and application, we must always remember to caution soil conservation districts and farmers and ranchers against draining any considerable area of land which is better suited for wildlife than for cultivation, such as large bodies of acid peat lands (usually areas larger than about 25 acres each) which have a low value for crop production and high susceptibility to burning after drainage.

In addition, it is mandatory that districts, farmers, and others provide fully for maintenance of drainage improvements and for protection of contributing watersheds at all times against soil erosion, which would soon choke drainage works with debris.

The general working principles to be used by the Soil Conservation Service in conservation drainage work are outlined in the attached "Guide for the Conduct of Soil Conservation Service Drainage Activities." Each Regional Conservator will study these principles and carry on conservation drainage planning and operations in conformity with them.

Previous instructions on the subject of drainage which conflict with these principles are superseded by the provisions of this guide. The guide does not cover the subject of conservation irrigation. That phase of Soil Conservation Service work will be included in a later statement.



H. H. Bennett
Chief

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Washington 25, D. C.

GUIDE
FOR THE CONDUCT OF SOIL CONSERVATION SERVICE DRAINAGE
ACTIVITIES

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PART 1

DRAINAGE POLICIES OF THE SOIL CONSERVATION SERVICE

The memorandum of the Chief entitled "Drainage of Wet Agricultural Land for Conservation and Production," (see appendix) dated April 2, 1946, and approved by the Secretary of Agriculture, outlines the basic principles to be followed by the Service in conducting conservation drainage activities.

In conformity with the provisions of that memorandum, it will be the policy of the Service to:

- I. Furnish assistance to conservation districts* requesting aid in developing and carrying out the drainage phases of soil and water conservation and land use programs. This assistance will be provided primarily as follows:
 - A. Assist conservation districts in the preparation and revision of programs and work plans to include appropriate construction and maintenance considerations in any plans for drainage improvements, and in the execution of such plans.
 - B. Make examinations and surveys of drainage problem areas as the basis for the development of drainage plans along technically sound lines and for the preliminary determination of the feasibility of drainage improvements, including assistance needed from Federal, State, and local agencies.
 - C. Assist conservation districts by furnishing technically sound aid to individuals, and to organized and unorganized group enterprises, and by providing them with detailed plans, designs, and specifications for construction and maintenance of drainage measures.
 - D. Loan or grant available equipment and furnish other available services to conservation districts when and where needed for use in constructing and maintaining conservation drainage measures.
- II. Cooperate with state, local and other agencies and individuals engaged in drainage activities in soil conservation districts.
- III. Carry on research to find new and better drainage practices and to develop improved methods for constructing, operating, and maintaining conservation drainage measures.

*Soil conservation districts and also those relatively few public drainage enterprises having the authority deemed necessary by the Department of Agriculture to adopt programs of land use and soil and water conservation.

- IV. Inform the public of the need for and benefits to be derived from improved drainage.
- V. Encourage conservation districts to further educational activities on the importance of technically sound drainage activities in soil and water conservation programs.
- VI. Review drainage statutes, in cooperation with the Office of the Solicitor (U. S. Department of Agriculture), for the purpose of making recommendations for any needed revision of existing laws or for the enactment of new legislation.
- VII. Keep the Secretary of Agriculture advised of important legislative considerations in the field of agricultural drainage.

ASSISTANCE TO CONSERVATION DISTRICTSGeneral principles governing assistance

Conservation drainage work of the Soil Conservation Service will be carried on primarily as assistance to conservation districts and in accordance with appropriate cooperative arrangements. In furnishing such assistance, the following principles will govern:

- I. All services and other assistance made available by the Soil Conservation Service will be directed toward achieving the greatest amount of effective conservation with the funds and time expended.
- II. Adequate information will be obtained in order to provide a sound basis for all planning, application, and maintenance work done by the Soil Conservation Service in assisting districts.
- III. Assistance will be made available in accordance with appropriate plans and schedules.
- IV. High technical standards will be maintained in all phases of Soil Conservation Service assistance.
- V. Adequate records--those reasonably necessary--will be maintained for both administrative and technical use.
- VI. Personnel will be selected, assigned, and trained in conservation drainage methods in accordance with established procedures of the Soil Conservation Service.
- VII. To insure thorough and orderly conduct of conservation drainage activities, the following factors will be given proper consideration in connection with each undertaking:
 - A. Administrative factors:
 1. Amount and grade of professional and subprofessional personal services needed,
 2. Amount and type of equipment needed,
 3. Amount and type of materials needed,
 4. Length of time necessary to complete the job,
 5. Any commitments to other districts which would have an effect on the job under consideration,
 6. Other considerations.
 - B. Relationship factors:
 1. Number of farmers or ranchers involved,
 2. Number and nature of organized and unorganized groups involved,
 3. Effects of the drainage work on other interests,

4. Attitude, interest, and responsibility of the conservation district and the land owners and operators,
 5. Ability of the conservation district, individual, or group to finance the work, including credit,
 6. Other considerations.
- C. Technical factors:
1. Any technical examinations or surveys necessary to insure sound operations and beneficial results from the work,
 2. Work hazards involved in planning, construction, and maintenance,
 3. Relationship of drainage work to other conservation activities in the area,
 4. Technical cooperation available to the conservation district by other agencies,
 5. Technical requirements of statutes and regulations,
 6. Other considerations.
- VIII. As a facilitating procedure, each region will establish a general working classification of conservation drainage jobs, with size and difficulty as the main standards. The assignment of special or additional technical assistance, as well as the responsibility for Soil Conservation Service decisions and recommendations on drainage matters, will vary in accordance with this classification.
- IX. Each Regional Conservator will be responsible for the preparation of such regional procedures and instructions, either new or revised, as will be necessary to make a Soil Conservation Service assistance available to conservation districts for conservation drainage work in accordance with the preceding principles. The various factors --administrative, relationship, and technical--which are listed under Principle VII of this Guide, together with the job classification listed under Principle VIII, shall be given particular consideration, and be simply defined, in such regional procedures and instructions, so that they apply directly to regional conditions. It may be necessary to list and evaluate each important item of work constituting a part of typical conservation drainage jobs before regional job classes can be clearly established. It should be especially noticed that the cost of the job is only one factor to be considered in determining classification.
- X. Procedures proposed by the Regional Conservator will be transmitted to Washington for review. The Washington staff will make such comments and suggestions as seem appropriate and useful.

District programs and work plans

In those soil conservation districts where drainage is clearly a major problem, it will be necessary to determine the feasibility and desirability of proposed drainage improvements before drainage features of the district's

program and work plan can be worked out properly. However, such determinations should not delay the preparation of other phases of the district's program and work plan. As rapidly as possible, of course, sound and scientific information based on drainage examinations and surveys, should be made available to district governing bodies for use in developing their complete programs and work plans.

In all cases, district governing bodies should be encouraged to give appropriate consideration to existing drainage problems and needs, especially on cultivated lands or formerly cultivated lands, and they should be invited to call on the Soil Conservation Service for information and assistance.

Further, in the preparation of district work plans, governing bodies should be encouraged to consider establishing priorities for at least the following drainage activities, as they may be needed, on cultivated lands or lands formerly cultivated:

1. Examination of drainage problems,
2. Survey to determine specific drainage needs, extent of the drainage problem, and the feasibility of drainage operations,
3. Analysis of any existing drainage enterprises,
4. Conservation surveys to determine the capabilities of wetlands and how they would be affected by drainage,
5. Detailed plans for the improvement of specific drainage enterprises of varying size and degree of difficulty,
6. Detailed plans for conservation drainage on individual farms and ranches or other units of land,
7. Use of equipment and other services provided by the Soil Conservation Service or other sources,
8. Definite provision in work plans for maintenance of drainage,
9. Development of accurate information on local drainage problems and practices for use by individuals and groups, including the public schools,
10. Provide all local organizations having inter-related drainage and other water problems with any available information that will be helpful in coordinating and improving the use of existing and proposed drainage systems,
11. Determine what assistance, other than that which might be supplied by the Soil Conservation Service, could be expected.

Preliminary examinations

When conservation districts being assisted by the Soil Conservation Service receive requests from land owners for technical help on drainage, it may be necessary for the Service to make field examinations of the drainage problem to provide a basis for determining the feasibility of operations and for developing plans, procedures, or recommendations. These examinations may consist of no more than brief field inspections, involving consideration of the general suitability of the land for drainage, condition of the main drainage outlet, general interest of land owners, and financial and other resources. The purpose of these examinations is to ascertain whether conditions and

the public interest are favorable for going ahead with more detailed surveys. The amount of Service resources to be assigned to such surveys should be determined, insofar as possible, by these preliminary examinations.

As a result of such examinations and brief studies, the problem areas may usually be classified in one of the three following categories:

1. Areas which have reasonably adequate outlets and which can be readily improved by practical farm or group drainage operations,
2. Areas where the problem is so difficult that a comprehensive drainage survey of the area will be needed, and
3. Areas where major outlets are clearly inadequate and where major works beyond the ability of the local people to construct, individually or through local drainage enterprises, are needed. In these areas, further work should be delayed and surveys postponed until satisfactory arrangements can be worked out between the cooperating parties interested in the necessary construction.

Surveys

Where it has been determined by preliminary examinations that conditions and local cooperation warrant additional assistance, the Soil Conservation Service may assign technicians to make more detailed drainage surveys as a further aid to governing bodies of conservation districts. The purpose and scope of such surveys will be to determine the suitability of the area for agricultural use and the economic feasibility of drainage, as well as to procure information on which to base detailed plans for drainage. Such surveys should develop the following types of information:

1. Capabilities of the land being considered for drainage,
2. Condition of existing natural and artificial drains, including both laterals and the main disposal ditches,
3. Acreage of land improperly drained and resultant crop losses, as well as other losses such as damage to highways, railroads, municipalities, public utilities, etc.,
4. Acreage not now drained which could be brought into productive agricultural or other use through drainage, with due safeguards for wildlife and other resources,
5. General plan for improvement of main drainage disposal systems, including the major artificial channels and streams used primarily as outlets. Approximate cost (estimates) of such improvements should be included, as well as information about the direct and indirect relation of proposed installations to improvement in land use.
6. General plan of improvements for the drainage collection systems, including intra-farm ditches, main tile lines, and laterals receiving surplus waters from a farm or group of farms, including an estimate of the cost of such ditches and drains,

7. Estimate of the cost of farm drainage, including clearing and other required work, and
8. Economic justification of drainage improvements, based on expected benefits and costs.

Final designs, locations, construction specifications, and detailed cost estimates for drainage improvements will be developed only after the decision has been made to make such improvements. This will save expense and time.

The general plans developed as a result of these surveys may be incorporated in district work plans, if the district governing bodies desire.

Detailed plans and construction

Detailed plans will be made in accordance with the principles outlined in this Guide and the findings presented in the survey reports. Full use will be made of all pertinent information available, supplemented where necessary by primary surveys.

Suggestions will be made to conservation districts as to the form and content of necessary agreements, the importance of easements and similar legal arrangements, and advice that may have to be obtained from local attorneys.

Recommendations by the Soil Conservation Service as to plans for operations will include clear and concise statements of facts as to specifications, quantity and cost estimates, contributions of the respective parties, outstanding obligations, and other information required for a clear understanding and necessary review and approval.

Regional staffs will develop, or revise, technical guides and standards for detailed plans and construction work in line with the principles previously outlined in this Guide. These will include requirements for surveys, plans, construction, distribution of costs, and other necessary work.

In addition to reports of Soil Conservation Service accomplishments generally required, appropriate files and reports on conservation drainage activities will be maintained in the Work Group, State, and Regional Offices on work accomplished.

Maintenance

The problem of inducing districts, land owners, and enterprise directors to maintain all drainage work will be of the highest importance. One reason for possible neglect in this direction is the frequent unwillingness of local interests to assume maintenance obligations. Another difficulty, in some instances, is likely to be the failure of local interests to realize the importance of upstream conservation work in controlling erosion and the consequent sedimentation of drainage ditches. A third difficulty may be inadequate planning for inspection and maintenance. A fourth difficulty may be

failure to support assessment programs for maintenance, etc.

Since the benefits of drainage depend on its continued effective functioning, it is essential that all of the foregoing considerations be emphasized fully in working with farmers and local groups. The contribution which the Soil Conservation Service will be able to make will be based on completely sound plans and work along all these lines. Nothing should be left undone to insure full understanding, acceptance, and good cooperative action where Service assistance is provided.

Government-owned equipment and other services

The Soil Conservation Service will loan or grant available equipment to soil conservation districts to advance all desirable drainage work. Light, mobile earth-moving equipment will be particularly valuable for doing much of the simple type of farm conservation drainage work, for constructing terrace and water disposal systems, and for establishing other soil and water conservation measures on the land.

Where drainage operations involve appreciable amounts of earth excavation, extensive installation of tile drain, and construction of major structures, it may be more desirable and economical for local groups to contract for the work, rather than make the necessary arrangements and assume responsibility for the operation of their own equipment. The Soil Conservation Service should encourage soil conservation districts to make use of properly guided and qualified private contract services, wherever it is practical and feasible to do so in connection with drainage operations.

In some special instances, it may be desirable and appropriate for the Service to provide soil conservation districts with other services, in addition to Government-owned equipment.

Satisfactory provisions for repair, maintenance, and careful use of Government-owned equipment and tools should be included in all Service-District loan agreements.

PART 3

COOPERATION WITH OTHER AGENCIES

Conservation operations

The Soil Conservation Service will furnish available information on proposed drainage plans and work arrangements, when needed, to the Secretary's Office. It will also assist the Department in other activities relating to conservation drainage operations.

Cooperation with responsible state agencies and highway, railway, and county officials, as well as with the officers of other bodies that may be concerned in drainage activities, is desirable and advisable beginning with the preliminary examination and continuing through surveys and operations

The Service will encourage the Corps of Engineers, U. S. Army, and other duly authorized agencies, to improve main streams and construct or improve major drainage outlets for the drainage of agricultural lands, in cases where such work is beyond the capacity of state and local agencies to organize and finance

The Service will encourage individuals, groups of farmers, and communities to utilize local services and resources wherever possible for facilitating drainage work. Cooperation of soil conservation districts with private drainage engineers is very desirable and should be encouraged.

Research

The Soil Conservation Service is giving added emphasis to drainage research conducted in cooperation with State Experiment Stations. Research committees organized in the Washington and Regional Offices are charting, as one part of their work programs of research that will help develop new and improved methods of drainage.

Governing bodies of soil conservation districts should be urged to submit to the Soil Conservation Service and other research organizations such problems of a research nature as they may encounter, together with any suggestions that may be helpful in developing new and improved practices.

Information and education

Educational activities in drainage are decidedly important. Emphasis should be placed on cooperation with local organizations in getting information to farmers and the general public. There is need for more educational material and factual information on the advantages of cooperative action by small informal groups in conservation drainage operations, principally in constructing outlet systems. Greater attention should be given to the development and use of educational materials and techniques needed for effective education in community meetings and schools.

District governing bodies should ask for the help of the Extension Service and other educational agencies in carrying out their conservation drainage

educational activities. It is hoped that the educational agencies will take the lead in and provide most of the assistance needed by the districts to properly present the drainage situation to the farmers and ranchers concerned. The Soil Conservation Service will cooperate with Federal and State Extension Services and other educational agencies in carrying on needed educational activities.

Legislation

There are many dissimilarities in the drainage laws of the several states. A state sometimes has several drainage statutes. Methods of establishment, administration, financing, and maintenance of enterprises are vastly different as between states.

These laws have developed gradually over the years as interest centered on the drainage of wetlands, and as larger and more costly drainage improvements became feasible. This led to the enactment of new statutes and to the amendment of old ones, with resulting conflicting provisions. The drainage of agricultural lands has also resulted in numerous controversial issues requiring court decisions for settlement.

Maintenance of drainage improvements is provided for by most drainage statutes, but in many instances the requirements are not enforced or locally accepted.

There is a wide range of success and failure in the history of drainage enterprises. A careful study of the several state laws is desirable to determine, from a legal standpoint, why drainage enterprises have succeeded in some states and failed in others. Simplification of, and uniformity in, drainage statutes would overcome much of the complexity of interpretation and thereby facilitate organization, administration, and financing. In some states, revisions of existing drainage statutes or the enactments of new legislation should be considered.

The Soil Conservation Service will cooperate with the Office of the Solicitor of the U. S. Department of Agriculture in undertaking studies of various state drainage laws and in the formulation of suggested principles of drainage law designed to aid in bringing about, if enacted, a greater degree of simplification and economy in the establishment and administration of drainage enterprises. Service personnel should encourage soil conservation district governing bodies to assist state officials in the review and improvement of their drainage statutes.

TO : Clinton P. Anderson, Secretary of Agriculture Date: April 2, 1946
FROM : H. H. Bennett, Chief, Soil Conservation Service
SUBJECT: Drainage of Wet Agricultural Lands, for Conservation and Production

Effective drainage of wet agricultural lands is an integral part of the soil and water conservation program of the country. It promotes a more efficient use of available land resources. It tends to remove the pressure from highly erodible and less productive lands. It increases the productive capacity of the nation. In the long run, it reduces the cost of production.

From the standpoint of critical food needs this year and in the immediate years ahead and also from the standpoint of sound agricultural development and production over the future, drainage of the rich wet agricultural lands of the country is a necessary and desirable undertaking.

Today, on the farms of the nation, there are some 29 million acres that are either too wet for full production or too wet for any production at all. At one time or another, most of this land has been farmed. Some of it is still being farmed. However, with too much water on top of the land, or too much water in the soil itself, results are rarely worth while. It is not producing food, fiber, feed, and grazing as it should. In addition, there are approximately 8 million acres of irrigated lands in the West needing drainage to control the water table and prevent damage from alkali salts.

There are an additional 20 million acres of wetland, never cleared for farming or opened for the cultivation of crops, that are suitable for bringing into production through drainage.

The total, then, is approximately 57 million acres suitable for drainage. The primary area of activity is in the 37 million acres of wetland that have already been utilized, at one time or another, for farm production. The secondary area is the 20 million acres of wetland not yet cleared for farming or opened for cultivation.

These wetlands are not concentrated geographically, but are to be found to some extent in almost every part of the country. In assisting soil conservation districts, we have found that drainage is one of the major undertakings in the conservation programs of more than 660 districts. In most of the other soil conservation districts, numbering about 800 at the present time, drainage is usually of sufficient importance to warrant some consideration in plans and programs.

For success and permanence of drainage undertakings, however, operations must be integrated with other soil and water conservation measures in almost every instance. Failure to do so is a direct invitation to future trouble, waste, and unnecessary expenditure.

Shortcomings Shown by Past Experiences

The Soil Conservation Service, in aiding soil conservation districts with the drainage phase of the soil conservation program, and particularly in helping

districts develop their operational plans for the years immediately ahead, has been in a position to make a first-hand analysis of land drainage problems. The past experiences of farmers, drainage districts, and other drainage enterprises serve to point out many improvements that would be advantageous in connection with future work. Among the shortcomings shown by these past experiences are many instances of:

1. Ineffective provision for carrying on adequate maintenance.
2. Failure to control soil erosion on the watershed and thus prevent the filling of ditches with silt, sand, and other erosional debris.
3. Drainage disposal systems nullified or not fully effective because of inadequate farm drains.
4. Drainage systems installed without regard to their effect on other systems, or to the lack of other systems, in the same watershed.
5. Enterprises so small that a disproportionate share of the total costs were absorbed by overhead legal, engineering, and fee costs.
6. Lack of physical coordination between agricultural drainage systems and water disposal by state and county highways and railroads.
7. Faulty design.
8. Poor construction.
9. Improper appraisal, before drainage, of the capabilities of land for agricultural use.
10. Attempted drainage undertakings under circumstances where the expected benefits did not warrant the costs.
11. Inadequate or complex state legislation under which drainage enterprises organized and under which they constructed, operated, and maintained drainage works.

These various shortcomings in drainage endeavors have retarded development of the nation's wetlands and have resulted in much hardship to farm families. Moreover, because of these shortcomings many drainage enterprises have proven financially unsound and some drainage districts have defaulted their bonds.

Soil Conservation Service Drainage Activities to be Strengthened

Assistance toward solving the problems of agricultural drainage can be made available to many existing drainage enterprises through soil conservation districts, which have broad powers in the field of physical land programs, as provided in the State Soil Conservation Districts enabling laws.

In this connection, it may be noted that there are now in existence, under State laws, some 40,000 separate and independent drainage enterprises. Direct assistance to each of these appears neither feasible nor necessary.

We have found that through local farmer leadership in soil conservation districts, and with the technical guidance of Soil Conservation Service personnel assigned to assist such districts, genuine progress can be made in solving the drainage problems of both individual farmers and group enterprises.

During the war years, drainage progress necessarily has been slow. We are still losing annually the productive capacity of additional acres of our best land through the clogging of drainage outlets and the flooding and water-logging of good alluvial land. On the other hand, the need for increased productive capacity, due both to the world food situation and the increasing demands of an ever-increasing population at home, is now more fully recognized. The 57 million acres of good land in need of drainage is a major undeveloped land resource of the nation.

With your approval, I propose, in view of the importance of agricultural drainage to effective soil and water conservation and to efficient production, to intensify the assistance of the Soil Conservation Service to those soil conservation districts having substantial drainage problems. Through such districts we can provide the greatest degree of effective help to drainage enterprises and individual farmers having drainage problems. This I would do, within the limits of available resources, in accordance with the following principles:

1. The Service will emphasize that drainage of land is an integral part of the conservation of agricultural resources and will encourage drainage only where economically and physically sound and in the public interest.
2. The Service will provide assistance in drainage to individual farmers and group enterprises through soil conservation districts (and also through those relatively few public drainage enterprises having the authority deemed necessary by the Department to adopt broad programs of land use and soil and water conservation).
3. The Service will encourage soil conservation districts and public drainage enterprises to use to the fullest extent the assistance available from local and state sources.
4. Assistance by the Service to drainage enterprises will be conditioned on adoption by the enterprise of a satisfactory plan for adequate maintenance, as well as for construction or reconstruction, of the drainage improvements.
5. The Service will assist soil conservation districts in determining the need and practicability of drainage and in establishing needed drainage enterprises.
6. The Service, when assisting in drainage, will include recommendations for proper safeguards for wildlife and other resources.
7. The Service will strengthen and broaden its drainage research work, in cooperation with the Land Grant Colleges, to advance technical knowledge and to develop improved methods for constructing, operating, and maintaining drainage works.

8. The Service will encourage the Corps of Engineers, U. S. Army, and other federal agencies, to extend authorized activities to include major drainage outlets that will facilitate agricultural drainage, but which are beyond the ability of local and state instrumentalities and agencies to finance.
9. The Service will develop working arrangements with local, state, and federal public instrumentalities and agencies where there is joint interest in the improvement of particular streams, outlets or areas.
10. The Service, with assistance of the Office of the Solicitor, will encourage improvement or revision of existing State laws, or the enactment of new State laws, leading to simplification, uniformity, and economy in the establishment and administration of drainage enterprises and to provide greater efficiency and effectiveness in the construction and maintenance of drainage works.
11. The Service, with the help of the Secretary's office and other interested Departmental agencies, will undertake to keep the Secretary advised regarding important administrative and legislative considerations in the field of agricultural land drainage.
12. The Service will encourage the inclusion of agricultural drainage considerations in the action and educational work of other Departmental, state and local agencies having conservation responsibilities.

It is my belief that action along the lines set forth above will materially strengthen the orderly and economically sound development of land in need of drainage as a part of the conservation job and I strongly recommend that you indicate your agreement by signing in the space provided below.

Approved:



Secretary of Agriculture

